

ABSTRACT OF THE DISCLOSURE

A compression and decompression system and process for optimally compressing and decompressing multibit per pixel image regions based on the type of data contained in the image region, e.g., whether the image region contains continuous tone data, including data to be halftoned, or non-continuous tone data, including antialiased text and lineart data. Segmented bytemap data blocks are processed to provide both low spatial resolution continuous tone data and high spatial resolution non-continuous tone data. However, the high spatial resolution non-continuous tone data is generated by quantizing and packing the high resolution bytes across an edge and discarding the high resolution bytes along the edge, i.e., the multibit data is discarded only in directions parallel to the edges of marks to be rendered in the image data. Additional information indicating the directions of the edges in the image data are stored to aid in decompression. Subsequently, during decompression, the non-continuous tone data is decompressed into a high spatial resolution bytemap by unpacking the high resolution across the edges and inferring the high resolution along the edges. The low spatial resolution continuous tone data are processed to provide a low spatial resolution continuous tone data bytemap. As a result of this compression and decompression method, the amount of memory necessary to store the non-continuous tone data is reduced to a quarter of the memory necessary to store a conventional high spatial resolution bytemap.